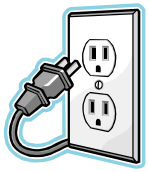

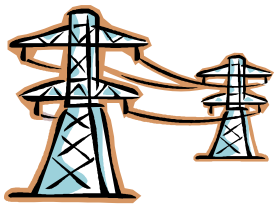

# It's Electric
# Electric Circuits and Energy Lesson

This lesson is recommended for grades 5 through 8. The time frame is 45 - 50 minutes.

**Goal:** To become familiar with how electricity is made, how circuits are formed, to create parallel and series circuits, and trace how electrical energy flows through each circuit.

**Academic Standards:** Physical Sciences, Science and Technology, and Scientific Inquiry (based on the Ohio model).

**Indicators:**

3. Describe that electrical current in a circuit can produce thermal energy, light, sound and/or magnetic forces. Gr. 5
4. Trace how electrical current travels by creating a simple electric circuit that will light a bulb. Gr. 5
5. Explain that the energy found in nonrenewable resources such as fossil fuels (e.g., oil, coal, and natural gas) originally came from the sun and may renew slowly over millions of years. Gr. 6
6. Explain that energy derived from renewable resources such as wind and water is assumed to be available indefinitely. Gr. 6
7. Describe how electric energy can be produced from a variety of sources (e.g., sun, wind and coal). Gr. 6
8. Describe how renewable and nonrenewable energy resources can be managed (e.g., fossil fuels, trees and water). Gr. 6

Trace energy transformation in a simple closed system (e.g., a flashlight). Gr. 7

1. Investigate positive and negative impacts of human activity and technology on the environment. Gr. 5

Explain how technology influences the quality of life. Gr. 6

3. Use evidence and observations to explain and communicate the results of investigations. Gr. 5

2., 4., 1. Choose the appropriate tools or instruments and use relevant safety procedures to complete scientific investigations. Gr. 6, 7 and 8

**Objectives:**

- Students will model open and closed electrical circuits.
- Students will create a simple electrical circuit.
- Students will draw the schematics for the series circuit and a parallel circuit.
- Students will construct series and parallel circuits.
- Students will explain the difference between the two different circuits in terms of wiring pattern and the effect on a light bulb.
- Students will be informed of the safety hazards of electricity by understanding that electrical current can produce thermal energy.
- Students will measure voltage across components of the circuit.
- Students will practice safety in the lab.

**Note:** It is the responsibility of the district/school to determine which students participate in the programs. This includes, but is not limited to, the district/school identifying students with allergies, those with potential to allergies, and to identify students with special needs who may require personalized accommodations. Prior notification is necessary to develop proper consideration.